REMARKS

This Amendment is responsive to the Final Action dated April 19, 2004. The Amendment merely makes clarifying changes to the title and specification, and does not change the claims. Accordingly, the Amendment should be entered in due course.

Claims 1, 6, 7, 9-14, 16-20, 26, 28-33 and 35-42 were pending in the application. In the Final Action, claims 1, 6, 7, 9-14, 16-20, 26, 28-33 and 35-42 were rejected. Claims 1, 6, 7, 9-14, 16-20, 26, 28-33 and 35-42 thus remain for consideration.

Applicant submits that claims 1, 6, 7, 9-14, 16-20, 26, 28-33 and 35-42 are in condition for allowance and requests reconsideration and withdrawal of the rejections in light of the following remarks.

Title

A new title has been provided. The new title is believed to be clearly indicative of the invention to which the claims are directed.

Specification

The specification has been amended as suggested by the Examiner, and is now believed to in compliance with all formality requirements.

§103 Rejections

Claims 1, 9-14, 16, 19, 20, 28-33, 35 and 38 were rejected under 35 U.S.C. §103(a) as being unpatentable over Veltman (WO 94/30014) in further view of Moriyama et al. (U.S. Patent No. 5,572,333).

Claims 17, 18, 36 and 37 were rejected under 35 U.S.C. §103(a) as being

unpatentable over Veltman and Moriyama, and in further view of Iwamoto et al. (U.S. Patent No.

5,974, 225).

Claims 39-42 were rejected under 35 U.S.C. §103(a) as being unpatentable over

Veltman and Moriyama, and further in view of Azadegan et al. (U.S. Patent No. 5,819,004).

Claim 6 was rejected under 35 U.S.C. §103(a) as being unpatentable over

Veltman and Moriyama, and further in view of Dieterich (U.S. Patent No. 6,100,940).

Claims 7 and 26 were rejected under 35 U.S.C. §103(a) as being unpatentable

over Veltman and Moriyama, and further in view of Dieterich.

Applicant submits that the independent claims (claims 1 and 20) are patentable

over the cited references of Veltman, Moriyama, Azadegan, Iwamoto and Dieterich.

Applicant's invention as recited in the independent claims is directed toward a

signal processor and signal processing method for compression encoding source data and

concatenating the compressed source data with descriptive metadata. Each of the claims recites

that the compression encoding operation is carried out such that the compressed data rate

achieves a minimum rate, that the combined data rate of the concatenated compressed data and

metadata does not exceed a predetermined maximum, and that the compressed data rate is set by

controlling the quantisation of the encoded data.

Neither Veltman, Moriyama, Azadegan, Iwamoto nor Dieterich discloses the data rate aspects of Applicant's invention. In particular, Applicant wishes to comment on the Veltman reference.

The system according to Veltman multiplexes ancillary data with compressed audio/video data. Veltman discloses two specific examples of the ancillary data, namely, (a) directory packets and (b) time stamps. In relation to directory packets, Veltman states in page 36, line 23 to page 37, line 2, that "the directory packet consists of the directory header (Dir.Pkt.Hdr), followed by a set of directory entries, one directory entry for each one of the following Groups of Pictures." In relation to time stamps, Veltman states in page 93, lines 17-18 that "the MPEG-2 standard requires that one time stamp be provided for each still picture". Veltman therefore teaches ensuring that all of the ancillary data is placed into the output bitstream as otherwise (a) in relation to directory packets, fast-forward and rewind would not function correctly and (b) in relation to time stamps, the output bitstream would not be MPEG-2 compliant.

In contrast, the system according to the present invention multiplexes ancillary data with compressed source data in a different way. If the maximum bandwidth of the channel is M and a frame is encoded in F_n bits, then $M-F_n$ bits of ancillary data are concatenated to the compressed data for that frame. This is described from page 4, line 27 to page 5, line 17. As stated in page 5, line 15-16, "if a frame is encoded with the maximum number of bits M, then no metadata can be concatenated to it."

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Therefore, according to the present invention, ancillary data is only multiplexed into the bitstream when there is sufficient bandwidth for it. It is even possible that no ancillary data is multiplexed into the bitstream if, for example, all frames are encoded with the maximum number of bits, M. This differs greatly from the teaching of Veltman, which ensures that all of the ancillary data is multiplexed into the bitstream.

Whilst the present invention may adjust the compression encoding in an attempt to leave room for all of the ancillary data in the output bit stream, it also makes use of a predetermined minimum data rate for the source data, the compression encoding of the source data being arranged so as to provide the predetermined minimum data rate. As described in page 5, line 13, a minimum data rate is specified to ensure a minimal reduction of picture quality. Thus the present invention ensures that the quality of the compressed source data is not compromised. The data rate provided for the metadata is then determined in accordance with a difference between the predetermined minimum data rate and the predetermined maximum data rate (channel bandwidth M). <u>Veltman neither discloses nor suggests such a predetermined minimum data rate, nor its use in determining the data rate for the ancillary data.</u> Rather, the skilled man would be motivated by Veltman to (i) ensure that all of the ancillary data is multiplexed into the output stream (regardless of quantity) and (ii) set a <u>maximum</u> data rate for the compression encoding of the audio/video data in accordance with how much bandwidth remains.

Whilst it is appreciated that a buffer has an inherent predetermined minimum data rate of 0 (e.g. it is possible that no bits are used to encode a quantity of data), it is also

appreciated that (i) the actual minimum data rate used by prior art compression encoders varies in dependence upon the current occupancy of the buffer and (ii) the actual minimum data rate used by prior art compression encoders is determined by the requirement that a decoder's buffer does not overflow.

As such, none of the prior art documents cited by the Examiner disclose or suggest the use of a predetermined minimum data rate to:

(i)   ensure a minimal reduction of picture quality and

(ii)   define the data rate for ancillary data (as a difference between the predetermined minimum data rate and the predetermined data rate).

Since neither Veltman, Moriyama, Azadegan, Iwamoto nor Dieterich discloses the data rate aspects of Applicant's invention, Applicant believes that claims 1 and 20 are patentable over Veltman, Moriyama, Azadegan, Iwamoto and Dieterich – taken either alone or in combination – on at least this basis.

Claims 6, 7, 9-14 and 16-19 depend on claim 1. Since claim 1 is believed to be patentable over the cited references, claims 6, 7, 9-14 and 16-19 are believed to be patentable over the cited references on the basis of their dependency on claim 1.

Claims 26, 28-33 and 35-42 depend on claim 20. Since claim 20 is believed to be patentable over the cited references, claims 26, 28-33 and 35-42 are believed to be patentable over the cited references on the basis of their dependency on claim 20.

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Applicant respectfully submits that all of the claims now pending in the application are in condition for allowance, which action is earnestly solicited.

It is submitted that these claims, as originally presented, are patentably distinct over the prior art cited by the Examiner, and that these claims were in full compliance with the requirements of 35 U.S.C. §112. Changes to these claims, as presented herein, are not made for the purpose of patentability within the meaning of 35 U.S.C. §§101, 102, 103 or 112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicant is entitled.

Statements appearing above with respect to the disclosures in the cited references represent the present opinions of the Applicant's undersigned attorney and, in the event that the Examiner disagrees with any such opinions, it is respectfully requested that the Examiner specifically indicate those portions of the respective reference providing the basis for a contrary view.

If any issues remain, or if the Examiner has any further suggestions, he/she is invited to call the undersigned at the telephone number provided below.

The Examiner is hereby authorized to charge any insufficient fees or credit any overpayment associated with the above-identified application to Deposit Account No. 50-0320.

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The Examiner's consideration of this matter is gratefully acknowledged.

Respectfully submitted,

FROMMER LAWRENCE & HAUG LLP

By:_____

Bruno Polito
Reg. No. 38,580
(212) 588-0800